From:	Andrew Mutziger
To:	Holly Phipps
Cc:	Melissa Guise; pamela jardini; James Caruso
Subject:	APCD's Review of the Dec 2015 Revised Billig Project's Air Quality Report
Date:	01/13/2016 04:16 PM
Attachments:	PatientVisitorTripDistanceEstimationAJM.xlsx BilligProjectOperationalPhaseUnmitigatedAirQualitySignificanceThresholdsEvaluation.xlsx Trip_Rates_Worksheet_Supplement(1-11-16)-FromYorke-AJMReview.xlsx APCDReviewOfTripReductionsIdentifiedInTheBilligDec2015AQreport.xlsx

Hi Holly,

The updated Dec 2015 air quality report for the Billig project:
1) Quantified the reductions in daily trips to the facility due to the longer patient stays with a behavioral health hospital relative to a standard hospital (see file: APCDReviewOfTripReductionsIdentifiedInTheBilligDec2015AQreport.xlsx);
2) Identified the distance to use for out of county patients/visitors (see file: PatientVisitorTripDistanceEstimationAJM.xlsx); and
3) Evaluated the project's air quality impacts with the assumption that 1/3 of the patient/visitor trips would be from outside of the county.

The APCD has accomplished detailed reviews of these changes and concur with the approach used by Yorke.

The criteria air pollutant side the updated report demonstrates that the project, with 1/3 of the trips being from out of county, would be below the CEQA significant level of 25 lb/day of ozone precursor emissions. Further, SLOCAPCD ran the CalEEMod model to investigate what the impacts would be if 50% and 100% of the patient/visit trips came from outside of the county. The results are that neither of these scenarios would result in the ozone precursor emissions being more than the 25 lb/day threshold. This is the same conclusion as the Sep 2015 version of the air quality report which did not account for patient/visitor trips from outside of the county.

The greenhouse gas impacts were over the 1,150 MT per year CEQA threshold in both the Sep and Dec 2015 versions of the air quality report. **The APCD's recommendation to mitigate these GHG impact to a level of insignificance will be for the project proponent to either:**
a) Demonstrate that the project is consistent with the Energy Wise Plan from the County (the county's climate action plan) or b) mitigate the excess impacts with off-site mitigation.
Note: The SLOCAPCD does not authorize releasing projects from the responsibility of mobile source GHG emissions as is shown at the bottom of Table 3-5 of the Dec 2015 report.

This project proposes to provide 91 beds for the behavioral health portion of the project. That is approximately 33 acute psychiatric inpatient beds/100,000 SLO County residents. This value is less than the 50 beds/100,000 people recommendation stated in the California Hospital Association's (CHA) report that was updated on 12 Sept 2014 and it is more than the California statewide average of about 17 beds/100,000 people which is also listed in the CHA report. This would indicated that the project could have patients/visitors from out of the county. As such, it was important to evaluate the air quality impact from out of county

patients/visitors. This evaluation is included in an APCD generated table found in file which expands on Table 3-5 of the Dec 2015 Yorke revised air quality report: BilligProjectOperationalPhaseUnmitigatedAirQualitySignificanceThresholdsEvaluation.xlsx

The APCD is satisfied with Dec 2015 air quality report with the exception of the GHG mitigation needs specified above. With regards to GHG, the APCD recommends that the County decide the "In-County" and "Out of County" patient percentages to use that will ensure that worst case emissions GHG impacts can be mitigated fully. If the project proponent elects to use off-site mitigation to address the GHG impacts, they will first need to assess the benefits of actual on-site GHG mitigation measures that will be implementing by the project. The project proponent will need to provide the final operational phase GHG emission evaluation for the project to the APCD for review and approval and work with the APCD to determine the off-site GHG mitigation approach that the project will use to bring their impact to a level of insignificance.

Please let me know if you have any questions.

Sincerely,

Andy Mutziger
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ATTACHMENT 5

		1988 *	1989 *	1990 **	1991 **	1992 **	1993 ***	1994 ***	1995 ***	1996 ***	1997 **	1999 ***	2000 ***	2001 ***	2002 ***	2003 ***	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Total Inpatient	29.1	27	25.6	23.1	19.8	16.2	10.4	11.7	11.5	10.2	10.2	10	9.3	10.3	9.8	9.4	9.5	9.9	9.3	9.4	9	9.1	9.5	8.8	8.9
****	Adult	--	--	--	--	14.6	13.7	9.3	9.9	9.7	8.8	--	8.6	7.9	8.5	8.6	7.9	8.5	8.9	8.4	8.3	8.3	8.5	7.8	9.1	8.9
****	Child	46.7	41.7	36.4	33.4	27.6	21	12.7	14.6	14.1	12.8	--	11.1	11.7	11.1	11.8	12	11.4	12.4	12.2	12.6	10.8	10.4	10.1	10.8	9.9
****	Adolescent	40	35	33	23.6	21.4	19.2	10.6	12.2	11.4	10.9	--	10.2	9.8	10.2	10.2	9.9	9.7	10.1	10.2	10	9.4	9.7	9.3	9.1	8.9
	Alcohol & drug / adults	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.7	8	7.1	7.8	7.6	7.4	7	7.6	8.2
	Alcohol & drug /youth	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.7	13.8	12.7	12.6	9.1	11.7	7.4	9.7	8.1
****	Older adult	--	--	--	--	--	--	--	--	--	--	--	15.6	13.7	14.3	13.7	13.2	14.3	14.8	14.5	13.5	12.5	14.5	13.3	13.4	13.4

* trimmed at 90 days **trimmed at 60 days ***trimmed at 30 days

NOTE: The years 1990, 1991, and 1992 provide trended data. Trended data were included only for those organizations that supplied specific information for the years 1990, 1991, and 1992.

SOURCE: Annual Survey Reports, National Association of Psychiatric Health Systems. From reports from 1988 through 2014 (published 2015). Washington, DC.

**** During an 11 Jan 2016 telcon with Ann Robin from County Mental Health, she confirmed that the proposed Billig poject's behaviroal health component would include separate pods for children, adolescents, adults, and older adults.
AJM, SLOCAPCD

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LENGTH OF STAY DATA

Total average length of stay (which looks at all hospital-based programs combined -- including adult/geriatric, child/ adolescent, and substance abuse programs) is provided below, as well as specific length of stay data for child and adolescent programs where available. When this data is used, credit must be given to:

From NAPHS *Annual Survey Reports* from selected years.

NOTE: *Data was not collected—and is not reported below—for 1998.*

Average Length of Stay (in days)

Program	1988 *	1989 *	1990 **	1991 **	1992 **	1993 ***	1994 ***	1995 ***	1996 ***	1997 **	1999 ***	2000 ***	2001 ***	2002 ***	2003 ***	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 (PREVIEW FY 13)
Total Inpatient	29.1	27.0	25.6	23.1	19.8	16.2	10.4	11.7	11.5	10.2	10.2	10.0	9.3	10.3	9.8	9.4	9.5	9.9	9.3	9.4	9.0	9.1	9.5	8.8	8.9
Adult	--	--	--	--	14.6	13.7	9.3	9.9	9.7	8.8	--	8.6	7.9	8.5	8.6	7.9	8.5	8.9	8.4	8.3	8.3	8.5	7.8	9.1	8.9
Child	46.7	41.7	36.4	33.4	27.6	21.0	12.7	14.6	14.1	12.8	--	11.1	11.7	11.1	11.8	12.0	11.4	12.4	12.2	12.6	10.8	10.4	10.1	10.8	9.9
Adolescent	40.0	35.0	33.0	23.6	21.4	19.2	10.6	12.2	11.4	10.9	--	10.2	9.8	10.2	10.2	9.9	9.7	10.1	10.2	10.0	9.4	9.7	9.3	9.1	8.9
Alcohol & drug / adults																	6.7	8.0	7.1	7.8	7.6	7.4	7.0	7.6	8.2
Alcohol & drug /youth																	12.7	13.8	12.7	12.6	9.1	11.7	7.4	9.7	8.1
Older adult												15.6	13.7	14.3	13.7	13.2	14.3	14.8	14.5	13.5	12.5	14.5	13.3	13.4	13.4

* trimmed at 90 days **trimmed at 60 days ***trimmed at 30 days

NOTE: The years 1990, 1991, and 1992 provide trended data. Trended data were included only for those organizations that supplied specific information for the years 1990, 1991, and 1992.

SOURCE: *Annual Survey Reports*, National Association of Psychiatric Health Systems. From reports from 1988 through 2014 (published 2015). Washington, DC.

UPDATED July 2015

If you're looking for additional historical information, you may be able to get assistance from the Survey and Analysis Branch of the Center for Mental Health Services, phone: 240-276-1780. They publish *Behavioral Health, United States*, which provides an overview of mental health data trends over the past 20 years. The most recent edition is *Behavioral Health, United States, 2012* (available as a pdf at http://media.samhsa.gov/data/2012/BehavioralHealthUS/2012-BHUS.pdf or under "publications" at www.samhsa.gov. Historic data is also available in earlier editions (previously titled *Mental Health, United States*).

Average Hospital Stay Lengths

French Hospital as reported by American Hospital Association - Average length of stay is 3.69 days.
Twin Cities Hospital as reported by American Hospital Association - Average length of stay of 4.05 days.
These values were provided by Jan Hochhauser to APCD in an 11 Jan 2016 e-mail. That email stated: "This is on the American Hospitals Data website, for small short term acute care hospitals."

21 Dec 2015 Hochhauser Cited High Stay Length for Typical Hospital (HBA 2015) = 4
21 Dec 2015 Hochhauser Cited Low Stay Length for Typical Hospital (HBA 2015) = 3

Average of Hochhauser Cited Range of Stay Lengths for Patients at Standard Hospitals = 3.5

Behaviroral Hospital Stay Lengths

NAPHS 2000 to 2013 Average Stay Length for the four Applicable Patient Types for Billig Project = 10.9

21 Dec 2015 Hochhauser Cited High Stay Length for Psychiatric Hospital (HBA 2015) = 14
21 Dec 2015 Hochhauser Cited Low Stay Length for Psychiatric Hospital (HBA 2015) = 7

Average of Hochhauser Cited Range of Stay Lengths for Patients at Proposed Billig Behavioral Hospital Project = 10.5

Comparison of Options to Determine the # of Daily Patient/Visitor trip counts for the Billig Project based on Reported Bed Stay Lengths for Standard and Behavioral Health Hospitals

Option 1: Using straight averages of stay ranges provided by Hochhauser on 21 Dec 2015: 3.5/10.5 = 0.3333 ---> So the stay at a average Standard Hopital is 1/3 (33%) the length of stay at a Behaviroral Hospital. In terms of trips, this means that the Behaviroral Hospital has 1/3 the # of trips as the Standard Hospital.

Option 2: Using average data from NAPHS & American Hospital Association: (3.69 + 4.05)/10.9 = 0.355 ---> So the stay for Fench & Twin Cities is 35.5% of the length of stay at an average Behavioral Hospital. In terms of trips, this means that the Behavioral Hospital would have 35.5% of the trips as an average Standard Hospital.

Option 3: Using the Upper and Lower Boundary evaluation by Yorke in file: Trip_Rates_Worksheet_Supplement(1-11-16)-FromYorke.xlsx the stay at an average Standard Hospital is 0.393 times the length of stay at a Behaviroral Hospital. In terms of trips, this means that the Behavioral Hospital has 0.393 times the # of trips as the Standard Hospital. This is a reasonable worst case (i.e. there are more impacts than Option 1 or 2 above).

Option 3 was used by Yorke in the Dec 2015 revised air quality report for the Billig project. Option 3 provides the worst case method for identifying the Daily Trip count for Patients/Visitors for the proposed Billig project. The APCD believes that Option 3 is a reasonable worst case approach.

AJM, SLOCAPCD - 13 Jan 16

Billig Project Air Quality Significance Thresholds Evaluation – Unmitigated Operational Phase

	Pollutant	Threshold (lbs/day)	Project Emissions (lbs/day) *	Pollutant	Threshold (MT/Yr)	Project Emissions (MT/Yr)
1/3 of Patient/Visitor Trips from Out of the County	ROG + NOX	25	18.0	GHG, Amoritized**	1,150	1,924
1/2 of Patient/Visitor Trips from Out of the County	ROG + NOX		18.3	GHG, Amoritized**		1,951
All of Patient/Visitor Trips from Out of the County	ROG + NOX		19.3	GHG, Amoritized**		2,033
	* The daily emissions are only marginally affected by the trip distance because the number of daily Patient/Visitor trips are relatively small for approximately 3,163 behavioral health patients/year assuming an average of 10.5 days per stay per bed.			** Amoritized construction emission of 18.8 MT/yr (496.6MT Total/25yrs) is added to CalEEMod annual GHG emissions for Project		

AJM, SLOCAPCD - 13 Jan 2016

ATTACHMENT 5

EMISSIONS MODELING ASSUMPTIONS

AVERAGE ONE WAY TRIP DISTANCE

TRIP DISTANCES for Patients and Visitors from outside SLO County

DIRECTION	CITY/AREA	TRIP LENGTH to Billig from County Boarder (MILES)
EAST	CENTRAL VALLEY	39
NORTH	MONTEREY/SF BAY AREA	20
SOUTH	LOS ANGELES METRO	50

Average
36.33

There are 3 general directions to enter SLO County and assuming the outside referred patients are evenly distributed between the 3 directions, the average SLO County one way trip length to the facility from SLO County boarders is 36.3miles.

TRIP DISTANCES for Patients and Visitors from inside SLO County - Same as APCD Default avg. commute length in SLOCounty

Average
13

The APCD recommends that the average one-way distance to the facility be 13 miles for the SLO County referrals. 13 miles is the APCD recommended county-wide average worker commute length and that value is appropriate for the proposed facility which will draw from around the county

24.67

This is an average Patient/Visitor trip distance assuming 50%/50% Split between those from inside and those from outside SLO County.
It was the test value used to review the sensitivity of a change in patient/visitor trip lengths. The result was that the Mitigated ROG + Nox vaule was 28.7 lbs/day

AJM, APCD 3 Dec 2015

ATTACHMENT 5

Behavioral Health Hospital - Trip Rates Worksheet Supplement

Parameter	Value	Units	Notes
Behavioral health hospital component of facility known variables			
Average employee one-way trip distance	**13**	**miles**	SLOAPCD 12-14-15
Average vendor one-way trip distance	**5**	**miles**	SLOAPCD 12-14-15
Average patient/visitor one-way trip distance (weighted average of the in-county and out-of-county trip breakdown)			
In-county trip one-way trip distance	13	miles	SLOAPCD 12-3-15
In-county trip fraction	2/3	fraction	SLOAPCD 12-4-15; PS 12-18-15
Out-county trip one-way trip distance	36.3	miles	SLOAPCD 12-3-15
Out-county trip fraction	1/3	fraction	SLOAPCD 12-4-15; PS 12-18-15
Weighted average patient/visitor trip distance	**20.8**	**miles**	one-way, calculated
Average patient/visitor one-way trip rate (median of upper and lower boundary conditions)			
Weekday trip rate, standard hospital	11.81	trips/bed	ITE 2009; SLOAPCD 12-3-15
Standard hospital stay	3-4	days	HBA 2015
Behavioral health hospital stay	7-14	days	HBA 2015
Upper bound	4/7	as fraction	longest stay
	0.571	as decimal	
Lower bound	3/14	as fraction	shortest stay
	0.214	as decimal	
Fraction of standard hospital stay	0.393	ratio, from fractions	average stay
	0.393	ratio, from decimals	
Weekday trip rate, behavioral health hospital	**4.6**	**trips/bed**	mean
Weekend admissions fraction of week	20%	percent	NIH 2010 (approximate)
Weekend fraction per day	10%	percent/day	over 2 days
Weekday admissions fraction of week	80%	percent	NIH 2010 (approximate)
Weekday fraction per day	16%	percent/day	over 5 days
Ratio of Weekend to Weekday	0.625	ratio	ITE 2009 value is 0.629 - agrees well per ATE 2015
Weekend trip rate, behavioral health hospital	**2.9**	**trips/bed**	mean

50/50 split

13	miles
1/2	fraction
36.3	miles
1/2	fraction
24.7	**miles**

100% of Patient/Visitor Trips from outside the County

13	miles
0	fraction
36.3	miles
1	fraction
36.3	**miles**

NOTE: The Dec 2015 Yorke Air Quality Report assumed 1/3 of the Patient/Visitor trips would come from outside of the County and used this as worst case.

On 13 Jan 2016, SLOCAPCD evaluated the Billig project's air quality impact if 50% or 100% of the patients/visitors came from outside of the county. The above average trip distances were used by the APCD for the patient/visitor trips in the associated CalEEMod land use air quality impact modeling.

See file "APCDReviewOfTripReductionsIdentifiedInTheBilligDec2015AQreport.xlsx" for SLOCAPCD's review and acceptance of the 0.393 ratio as a worst case for the ratio to apply to the standard hospital patient/visitor trip count to yield a reasonable worst case for the behavioral hospital weekday patient/visit trip count.

The SLOCAPCD approves the approach of identifying the weekend trip rates based on the NIH 2010 data*.

* Ryan, K. (Thomson Reuters), Levit, K. (Thomson Reuters), and Davis, P. H. (AHRQ). Characteristics of Weekday and Weekend Hospital Admissions. HCUP Statistical Brief #87. March 2010. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcupus.ahrq.gov/reports/statbriefs/sb87.pdf or http://www.ncbi.nlm.nih.gov/books/NBK53602/pdf/Bookshelf_NBK53602.pdf

AJM, SLOCAPCD, 13 Jan 2015